RULES
OF
TENNESSEE DEPARTMENT OF AGRICULTURE
DAIRY DIVISION

CHAPTER 0080-3-4
REGULATION GOVERNING: FARM BULK MILK TANK TRUCKS, METHOD OF DETERMINING BUTTERFAT AND UNIFORM CODE SYSTEM FOR IDENTIFICATION OF PLANTS

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0080-3-4-.01 FARM BULK MILK TANK AND BULK MILK TANK TRUCKS.

(1) DEFINITION OF TERMS AND CLARIFICATION OF RESPONSIBILITY

(a) *Handler:* For the purpose of this regulation a cooperative association of milk producers (chartered under State Law) or a licensed milk dealer who receives milk from farm milk tanks shall be defined as a handler.

(b) *Hauler:* For the purpose of this regulation the operator of a tank truck who receives milk from farm milk tanks for delivery to a handler shall be defined as a hauler.

1. Butterfat content of bulk milk; and

2. For the health of persons handling milk; and

3. For the construction and maintenance of equipment which the handler owns or controls for bulk milk handling; and

4. Frequency of pickup.

(d) *Hauler Responsibility:* The haulers shall be responsible as a carrier, and shall be responsible for determining the marketable quality of the milk, for accurately measuring and converting to weight the quantity of milk, for taking samples to determine the butterfat content, grade, and quality of milk received from farm milk tanks, for maintaining sanitary handling equipment, and for frequency of pickup.

(2) LICENSE AND QUALIFICATIONS

(a) *Hauler:* Every person who operates a milk transport tank truck for delivery of milk from farm milk tanks to a handler shall be a licensed milk tester and/or sampler and weigher.

(b) *Handler:* Every handler receiving milk from a transport tank truck shall be a licensed milk dealer.

(c) *Handler Responsibility:* The handler shall be responsible for

(3) SANITATION AND STANDARDS

(Rule 0080-3-4-.01, continued)

(a) *Milk House and Installation of Tank:*

1. Construction shall meet the requirements of the Tennessee Dairy Laws and the minimum requirements of the latest United States Public Health Service Code.

2. Installed milkroom equipment should be readily accessible to the operator. Aisles should be at least 30 inches wide, with added allowance at the outlets of bulk cooling/holding tanks, adjacent to wash and rinse vats and where operational conditions warrant. It is especially important that the space available to bulk cooling/holding tanks and CIP systems be adequate to permit their disassembly, inspection and servicing.

3. Farm tanks shall not be located over floor drains except by permission of the Commissioner of Agriculture or his agent.

4. The door of the milk house is not to be used for entrance of hose from the tank truck. There shall be provided a small, self-closing port not to exceed 8 inches in diameter for the hose entrance. This opening shall be at least 6 inches above the floor inside milk house or 6 inches above ground level whichever is the higher. This opening is to be conveniently located in the milk house.

5. The agitator switch is to be conveniently located in the milk house. Automatic agitators are to be provided with manual control.

6. The covers of the farm tank are to remain closed except during the sampling, measuring, emptying, washing and sanitizing operations.

7. An apron of concrete construction with a minimum area of 32 square feet so located as to help protect milk-conducting facilities from filth and soil shall be provided. It shall be adjacent to the outside wall of the milk house in which the hose port is located. It is recommended that a firm driveway be provided adjacent to apron.

8. All farm tanks shall be installed high enough above the milk house floor so as to permit easy cleaning of floor underneath, minimum of 6 inches, and to comply with approved standards.

9. A safe electric outlet shall be provided close to the hose port for the purpose of connecting the pump on the tank transport.

10. All farm bulk tanks shall be set on a foundation sufficiently firm to withstand extended freezing and thawing and so anchored that after leveling they will remain level.

(b) *Construction of Farm Tanks*

1. It is required that the construction of farm milk tanks meets the 3-A National Standard for holding and/or cooling tanks.

2. Tanks shall be equipped with adjustable legs and provided with adequate means so that movable parts can be sealed.

3. The minimum diameter of the outlet opening shall be 1 1/2 inches. Valves are to be sanitary in construction, readily cleanable and are to comply with the 3-A National

Standard for fittings. A sanitary cap is to be provided to cover the outlet when not in actual use.

4. Tanks are to be equipped with a motor driven agitator so designed and powered as to provide adequate agitation of the milk without churning or excessive splash. Adequate agitation means that degree of agitation which within 5 minutes restores uniformity to the fat content throughout the capacity volume. The agitator shaft and blades are to be easily and readily demountable for cleaning.

5. Milk in farm tanks must be cooled to and maintained at 40 degrees F. or lower. The cooling process shall be such that the milk will be cooled to 50 degrees F. within one hour and to 40 degrees F. within the second hour. After the first milking and at no time thereafter shall the temperature of the milk exceed 50 degrees F.

(c) *Sampling and Testing*

1. Examination of the milk shall be made on each producer's milk at the time of pick up. Any milk which appears to be abnormal by sight and/or odor shall be rejected at this location.

2. Farm bulk milk shall be representatively sampled for quality in accordance with the requirements of the Tennessee Dairy Laws and Regulations and United States Public Health Code.

3. Temperature of milk in the farm tank shall be recorded at time of pick up.

4. Sampling of milk for an individual sample or for a sample for the making of butterfat tests shall be by the taking of a representative sample of milk after adequate agitation (minimum 5 minutes) from each farmer's milk tank.

5. All samples for quality and butterfat are to be properly refrigerated at all times. (Above freezing but below 40 degrees F.)

(d) *Cleaning and Sanitizing Farm Milk Tanks*

1. The farmer's milk tank shall be thoroughly rinsed with luke-warm or cold water by the tank transport operator as soon as all the milk has been drawn out.

2. As soon as is practical after the farm tank is emptied it is to be brush washed or cleaned by an approved mechanical method (metal sponges and metal buckets not recommended) with warm water and detergent, followed by a thorough acidity rinse and allowed to drain.

3. Agitator shafts, down pipes, measuring rods and similar equipment shall be protected from contamination until used again.

4. All milk contact surfaces shall be sanitized with an approved solution of proper concentration just prior to use.

(Rule 0080-3-4-.01, continued)

5. A water hose of sufficient length is to be provided in the milk house for the rinsing of farm tanks. The hose is to be equipped with necessary fittings, and a hanger to be provided in the milk house for storage of said hose.

(e) *Transport Tanks*

1. All tanks used to transport milk from farm to plant shall be constructed and maintained in accordance with the latest 3-A National Standards.

2. The transport tank shall be covered by the permit required by the appropriate health authority.

(f) *Milk Conducting Facilities*

Milk may be conducted from the farm bulk tank to the transport tank by approved hose or sanitary pipe. The fittings that attach the hose or pipe to the farm milk tank shall be protected with a sanitary cap to afford protection from contamination when not in use.

(g) *Unloading of Milk at Plant*

The unloading of milk from the transport tank shall be done in a place and a manner so as to prevent contamination during such operation.

(h) *Cleaning and Sanitizing Transport Tanks*

1. Transport tanks shall be cleaned and sanitized after each delivery unless the deliveries are to plants within the same market, in which case three loads in a twelve-hour period may be hauled between complete cleanups, provided that no more than two-hour interval is permitted between loads or pickups without cleaning and sanitizing the pump and hose. The hauler must clean and sanitize the pump and hose. The handler must clean and sanitize the transport tank.

2. A tag designating date, time, place and name of tank clean-up personnel shall be attached to each transport unit at the completion of each tank cleaning and sanitizing operation.

3. Each handler shall provide facilities for adequate washing and bacteriacidal treatment of tanks, piping and accessories.

(i) *Frequency of Pickup.*

1. (i) Bulk tank raw milk for Grade A purposes must be picked up from the farm and delivered to the milk plant at least every two (2) days.

(ii) Bulk tank raw milk for manufacturing purposes must be picked up from the farm and delivered to the milk plant at least every three (3) days.

2. At the time of collection, the bulk milk hauler shall collect only that raw milk which has been stored continuously in the farm tank from the time of milking until the time of milk collection. The hauler shall collect the entire volume of acceptable milk being stored in the tank at the time of collection.

(4) D. STANDARDS FOR MEASUREMENTS IN FARM MILK TANKS

(a) *General:*

1. A stationary tank, whether or not equipped for cooling its contents.

2. Means for reading the level of liquid on the tank, such as a removable gage rod or surface gage.

3. A chart for converting level-of-liquid reading to gallons.

4. Chart readings may also be shown in avoirdupois weight in conjunction with gallon readings on the basis of 8.6.

(b) *Center Reading Tank:* One so designed that the gage rod or surface gage, when properly positioned for use, will be approximately in the vertical axis of the tank, centrally positioned with respect to the tank walls.

(c) *Gage Rod:* A graduated, "dip stick" type of measuring rod designed to be partially immersed in the liquid and to be read at the point where the liquid crosses the rod.

(5) SPECIFICATIONS

(a) *Identification:* Farm milk tanks shall be conspicuously, clearly and permanently marked, for purpose of identification with the name, initials or trademark of the manufacturer and with the manufacturer's designation that positively identifies the pattern or design of the tank. A tank and any gage rod or surface gage and gallonage chart associated therewith shall be mutually identified, as by a common serial number, in a prominent and permanent manner.

(b) *Design:*

1. Level: A farm milk tank shall be in normal operating position when it is level. The tank shall be equipped with suitable special means by which this level can be determined and established, such as a permanently attached two-way level, or other approved and accurate means or reference for level determinations.

2. Permanence: Farm milk tanks shall be of such design, construction and material that it will withstand ordinary usage without impairment of the accuracy of measurements made therein. The shell, bulkheads and supporting framework shall be of such design, material and construction that they will not become distorted, under any condition of liquid lading. The tanks shall be rigidly installed in level on the floor of the milk house without use of removable blocks or shims under the legs.

3. Discharge outlet or valve: A farm milk tank shall be equipped with a discharge outlet or valve through which the tank may be completely emptied when the tank is in level.

4. Complete Drainage: A farm milk tank shall be so designed and constructed and shall be so installed that the tank may be completely emptied through the discharge outlet or valve when the tank is level.

(Rule 0080-3-4-.01, continued)

5. Calibration: Upon installation and/or re-installation at any farm, the tank shall have been calibrated, at the factory of the manufacturer, to "deliver" the indicated capacities, within the tolerances allowable.

6. Capacity: The capacity of a farm milk tank shall be determined as the highest liquid level reading obtainable where agitation of liquid will not overflow the tank.

7. Testing Medium: Water shall be used as the medium in determining the capacity of farm milk tanks.

8. Responsibility of Installation: It shall be the responsibility of the manufacturer or his agent, distributor, or the producer to install the farm milk tank as per specifications and regulations stipulated in this regulation, and to notify the Director of Weights and Measures Division, Tennessee Department of Agriculture.

9. Responsibility: It shall be the responsibility of the farm milk tank manufacturer to calibrate farm milk holding tanks. Said calibration shall be made at the factory of the manufacturer. Said calibration shall be in not more than 5-gallon intervals, complete from zero to the point of highest liquid level not to overflow the tank. All equipment used for tank calibration within the State of Tennessee must be approved by the Director of Weights and Measures Division, Tennessee Department of Agriculture.

10. Gage-Rod Bracket or Support: If a tank is designed for use with a gage rod, a substantial and rigid gage rod bracket or other suitable supporting elements for positioning the gage rod shall be so constructed that whenever the rod is placed in engagement with the bracket or supports, and released, the rod will automatically seat itself at a fixed height and in a vertical position. When a gage rod is properly seated on its bracket or supports, there shall be a clearance of at least 3 inches between the graduated face of the rod and any tank wall or other surface that it faces. The arrangements shall be such that it will be impossible to reverse the reading position. That the part of the gage-rod bracket which is designed to hold the gage-rod and which comes in contact with the gage-rod shall be sufficiently hardened, that under continual usage or careless handling, it will not become so worn that it will allow the gage-rod to hang to an improper depth in the tank thereby causing an error in the measure of the milk in the tank.

(c) *Indicating Means:*

1. Gage Rod: When properly seated in position, a rod shall not touch the bottom of the tank unless this is required by the design of the supporting elements. The rod shall be graduated throughout an interval corresponding to the gallonage range within which readings of the liquid level are to be made. Farm holding tanks shall be so constructed that nothing shall prevent vertical insertion of the gage rod. That part of the gage rod designed to hold the gage rod in the gage rod bracket and which comes in contact with the gage and bracket, shall be sufficiently hardened that under continual usage or careless handling will not become so worn that it will permit the gage rod to hang to an improper depth in the tank, thereby causing an error in the measuring of the milk in the tank. The graduated face of the rod shall have a dull finish.

2. Spacing Width and Identification of Graduations: On a gage rod or surface gage, the spacing of the graduations, center to center, shall be not more than 0.0625 (1/16) inch

and not less than 0.03125 (1/32) inch; the graduations shall not be less than 0.005 inch in width, and the clear interval between adjacent edges of successive graduations shall be not less than 0.015625 (1/64) inch.

3. Graduation Identification: The graduation scale shall be in terms of inches and fractions of an inch. Main graduation marks or lines including each 1/16 inch shall be successively longer than the minimum 1/32 inch graduation, and shall be numerically marked adjacent to the end not less than each 1/4 inch and shall start at the bottom and shall be in regular sequence.

4. Graduation: Gage rod graduations and numerals identifying same shall be milled, etched or otherwise indented but indentions shall not be so deep as to cause a capillary effect preventing straight line reading across entire face of the gage rod. Surface gage graduations shall be of such material that they will not become obliterated. Graduations shall be paralleled and at 90 (degree) angle to the perpendicular axis of the gage rod or surface gage.

5. Dimensions and Material: A gage rod shall be made of stainless steel or of other suitable approved material and design. When seated on or in its bracket the rod shall not touch the bottom of the farm milk tank. A gage rod shall be rectangular in shape and shall not be less than 1/4 inch in thickness and not less than 3/4 inch in width.

6. Values of Graduations: On a gage rod or surface gage, the graduations may be designed in inches and fractions thereof, or may be identified in a numerical series without reference to inches or fractions thereof. In either of these cases there shall be provided for each such rod or gage and each tank with which it is associated, a gallonage chart showing values in terms of gallons of liquid in the tank, corresponding to each graduation on the rod or gage. If a rod or gage is associated with but one tank, in lieu of linear or numerical series graduations and gallonage chart, values in terms of gallons of liquid in the tank may be shown directly on the rod or gage.

7. Sensitiveness: The value of graduated interval (exclusive of the interval from the bottom of the tank to the lowest graduation) shall not exceed one gallon for a tank of a nominal capacity of 500 gallons or less, and shall not exceed 2 gallons for a tank of a nominal capacity of more than 500 gallons.

(d) *Chart:* A gallonage chart shall be supplied with each farm milk tank and shall show values at least to the nearest pound for a farm milk tank of all capacities. All letters and figures on a chart shall be distinct and easily readable.

1. Opposite each increment shall be shown the value of that individual increment in terms of U.S. avoirdupois weight.

2. The chart shall bear the name and address of the manufacturer of the tank; the model and serial number of the farm milk tank for which it is intended; the date of the calibration, and the name of the person making calibration.

3. Three copies of each chart shall be furnished. One copy to be kept by the dairy; one copy to be kept by the manufacturer, one copy shall be mailed to the Director of Weights and Measures, Tennessee Department of Agriculture, Nashville, Tennessee.

(Rule 0080-3-4-.01, continued)

4. The dairyman's chart shall be sealed between transparent sheets of waterproof material, and shall be hung or otherwise placed in conspicuous place in the dairyman's milk house in which the farm milk tank is located.

5. All printing and/or typing shall be clear and distinct and all calibration figures shall be placed exactly in line with the increments they are intended to represent.

(e) *Installations:*

1. Farm Milk Tanks and Farm Milk Installations shall in every instance meet the State of Tennessee specifications and tolerances, rules and regulations and those adopted by the 3-A Standards Committee.

2. Farm Milk Tanks with Adjustable Legs: Adjustable legs shall be flat across the bottom and shall have permanently attached thereto a metal plate 4 inches square at least 1/4 inch in thickness, or in lieu thereof, a metal flange of comparable dimensions permanently affixed to the bottom of the legs.

3. Milk House Floor: If the concrete floor of the dairyman's milk house is less than 4 inches thick or is in poor condition, a concrete pier shall be provided for each leg of the farm milk tank.

4. Concrete Piers: Concrete piers shall not be less than 6 inches by 6 inches across the top and shall taper to not less than 12 inches by 12 inches across the bottom and shall not be less than 18 inches in depth. The top of each pier shall extend only to a point approximately 2 inches below the surface of the milk house floor. In locations where the weather is very cold, all piers must go below the "frost line" for their foundations.

5. All farm milk tanks shall be filled to capacity during leveling operations and shall be completely filled prior to the calibration thereof, for the purpose of setting the tank to a permanent position.

6. Tanks Without Legs: Farm milk tanks without legs shall be installed on a concrete island which shall extend at least 6 inches above the surface of the concrete floor of the milk house. The length and width of said concrete island shall be one inch less than the outside length and width of the farm milk tank and the surface shall be level throughout. Lugs shall be provided for permanently anchoring farm milk tanks to the concrete island on which they are installed. In using lugs, holes of the proper size and lead and inserts must be used to make the installations firm and rigid.

(6) TOLERANCES:

(a) *Application:* The tolerances hereinafter prescribed shall be applied equally to errors in excess and errors in deficiency.

(b) *Minimum Tolerance Values:* On a particular tank, the maintenance and acceptance tolerances applied shall not be smaller than the smallest volume corresponding to a graduated interval at any point on the gage rod or surface gage.

(c) *Basic Tolerance Values:* Basic maintenance and acceptance tolerances shall be as shown in table 1. (The error at any liquid level of a farm milk tank is the difference between the

(Rule 0080-3-4-.01, continued)

gallonage shown for that level on the gallonage chart and the corresponding gallonage determined by test. The tolerance is applied according to the volume of test liquid in the tank at each test draft, regardless of the nominal capacity of the tank.)

TABLE 1. -BASIC MAINTENANCE AND ACCEPTANCE TOLERANCES FOR FARM MILK TANKS

Nominal capacity of tank	Tolerance in excess and in deficiency
GALLONS	GALLONS
250 or less	1/2
251 to 500, incl.	1
501 to 1,500, incl.	3
1,501 to 2,500, incl.	4
2,501 to 5,000, incl.	6
Over 5,000	Add 2 gallons per 2,500 gallons or fraction thereof.

(7) REGULATIONS

(a) *Level Condition:* A farm milk tank shall be maintained in level.

(b) *Inspection:* The Department of Agriculture may make inspections of farm milk tanks, installations, and calibrations, as deemed necessary, for the purpose of enforcing these rules and regulations. In case of disputes, and upon request by either buyer or seller or both for inspection, the Department of Agriculture may make a reasonable charge to cover cost of making said inspection.

Any part of this section in conflict with the regulations pertaining to the production, storage, and transportation of raw milk for manufacturing purposes shall not apply to milk which is to be used for manufacturing purposes.

Authority: *T.C.A. §52-304.* ***Administrative History:*** *Original Rule certified June 5, 1974. Amendment to Rules 0080-3-4-.01(1) (c); 0080-3-4-.01(1)(d); 0080-3-4-.01(3)(h)1.and 0080-3-4-.01(3)(i) filed February 19, 1976; effective March 20, 1976. Amendment filed October 24, 1978; effective December 11, 1978.*

0080-3-4-.02 METHOD OF DETERMINING THE BUTTERFAT OF MILK OR CREAM WHEN BEING SOLD ON BUTTERFAT BASIS. The Babcock Test or other tests approved by the Commissioner as set out in the latest edition of Official Methods of Analysis prepared by the Association of Official Analytical Chemists, shall be an official method of determining the butterfat of milk or cream when being sold or purchased on a butterfat basis.

Authority: *T.C.A. §52-304.* ***Administrative History:*** *Original Rule certified June 5, 1974.*

0080-3-4-.03 UNIFORM CODE SYSTEM FOR THE IDENTIFICATION OF DAIRY AND/OR FOR TRADE PRODUCTS PLANTS. In accordance with the ecommendations of the National Labeling Committee, code numbers which shall appear on all consumer packages will be assigned to dairy and/or trade products plants as follows:

(a) The plant numbers will employ five (5) digits of which the first two and the last three are separated by a dash (-). (Example 00-000). The first two digits will be the number 41 which is the number assigned to the State of Tennessee. This will be followed by a dash (-). (Example 41-000).

(b) The third digit preceded by the dash (-) will indicate the type of operation for which the number is issued.

1. Number one (1) will indicate a fluid plant operation. (Example 41-100).

2. Number two (2) will indicate a frozen dessert manufacturing plant (no number will be issued a retail soft service establishment). (Example 41-200).

3. Number three (3) will indicate a manufacturing plant operation. (Example 41-300).

(c) The fourth and fifth digits will be used to identify the individual plants.

In the event a product is processed by one company and distributed by another company, the name and address of the distributor and/or processor shall be on the display panel. The processing company is not required to put their name and address on the carton if the number assigned them by the Commissioner and the name and address of the distributor is on the carton; provided, however, that the product must be registered in a name that appears on the carton. In the event a processing plant operates more than one plant they may use the address of the general office provided that the code number of the plant where processed is legible on the carton.

All other regulations previously issued by the Commissioner of Agriculture for the enforcement of Sections 52-301 - 52-319, Tennessee Code Annotated, and promulgated in accordance with Section 52-304, Tennessee Code Annotated, in conflict herewith are by these regulations repealed.

Executed this 19th day of November, 1970, Nashville, Tennessee.

Authority: *T.C.A. §52-304.* ***Administrative History:*** *Original Rule certified June 5, 1974.*